SIEMENS

RAS

RX

RAS network

Setting instructions

Register 04
RX99-051.032.02.01.02 English 03.95

Replaces : RX99-051.032.01.01.02, R99-051.032.12.03

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Tools and measurement devices required

NOTICE

Except for the standard installation kit, the various tools and measurement devices are listed as well as specified in part 3 of the ARTD.

Service PC	according to spec's	ARTD 3.1.0
PT Emulation		96 60 960 RE999
ST 320		97 04 586 Y 4364
Connection cable		99 00 440 RE999
Adapter		99 00 218 RE999
Meas. device for fiber optic cables		99 60 812 RE999

Documentation required

Depending on the system configuration, you need the documentation for the generator, unit, or DFR system.

Safety instructions

NOTICE

When performing the steps and tests described please adhere to:
- the product-specific safety instructions contained in this document
- the safety instructions RA0-000.012.29... in Register 2 of the generator or system manual, and
- the general safety instructions contained in Register 2 of the TI-folder.

Abbreviations used

RAS	X-ray system interface
RAI I.I./TV Adapter	X-ray system interface for TV system, monitor, Bucky wall stand and connection panel for a number of the cables in the corrugated hose coming from the image intensifier.
RWG	Bucky wall stand
DFR	Digital Fluoro Radiography
LWL	Fiber optic cable

Inserting the RAS ring

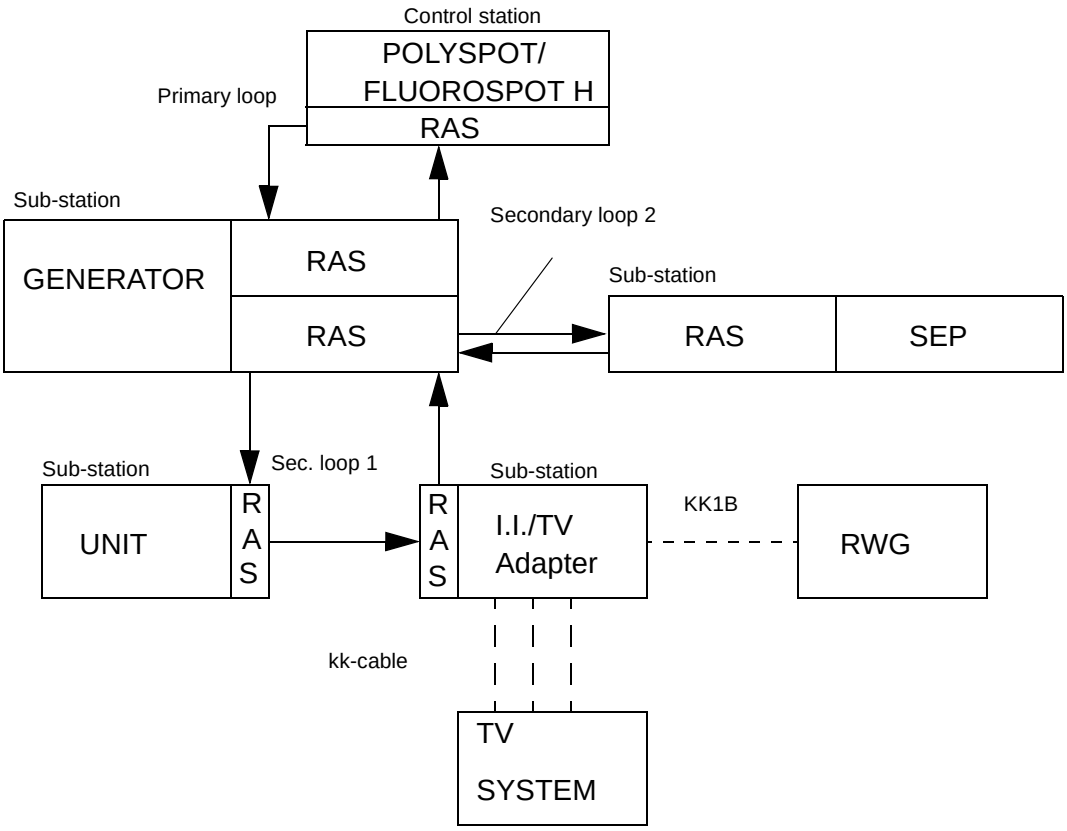


Fig. 1

Methodology

The RAS is a standardized interface for the components of an X-ray installation.

The RAS replaces the kk-connections. Microprocessor-controlled components exchange information directly, rendering the kk-interface technology superfluous. Only time-relevant signals, e.g. analog signals from the Iontomat or multiplier will be forwarded via kk-connections.

The RAS network is configured as a ring (refer to the example shown in fig. 1).

Each ring is stabilized via a loop feedback. In the event of interference on the ring, the system components linked by a secondary loop are automatically bypassed to maintain the ring functions.
Data transfer between stations in the ring is serial via optic fiber cables.

Each RAS station consists of an RAS board or a combination of several RAS boards depending on the system components (generator, diagnostic device..) and their location in the RAS network.

TV systems are connected to the network via a special interface, the I.I./TV adapter.
A kk1B connector for the I.I./TV adapter is available to connect a Bucky wall stand.

POLYSPOT/POLYTRON S PLUS

Setting the RAS group index:

- Connect the service PC to POLYSPOT/POLYTRON S PLUS (M80 X30).
- Start the service program ST 320.

Refer to the setting instructions POLYSPOT R41-030.032.01...
and setting instructions POLYTRON S PLUS R42-025.032.01...

- Set the RAS level index to 1 under XRAYSYSTEM/ROOM/COMMONDATA in the Configurations menu (enter 0 ≙ Index 1).

FLUOROSPOT H

Setting the RAS group index:

- Connect the service PC to the FLUOROSPOT (Transition Panel J27).
- Start the service program ST 320.

Refer to the start-up instructions FLUOROSPOT RX41-020.034.01....

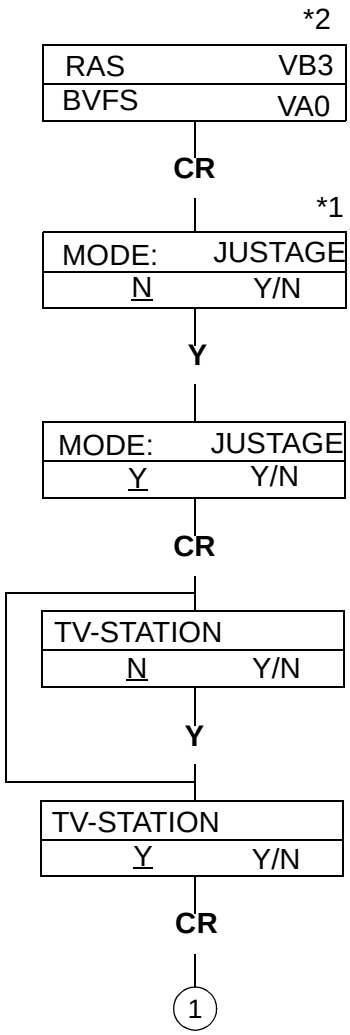
- Enter 1 under RAS group index on page 2 in the System Configuration menu

This page intentionally left blank.

- Connect the pocket terminal to board RAS 10. Use the same adapter board (D851) as for POLYDOROS 50S/80S, or connect the service PC to the pocket terminal emulation.
- Set switch S2 into position 2 (Config) on board RAS 10.
- Switch on the system

NOTICE

The label PT510 or PC on the board is without importance. Set a baud rate of 9600 Bd when you connect a PC.

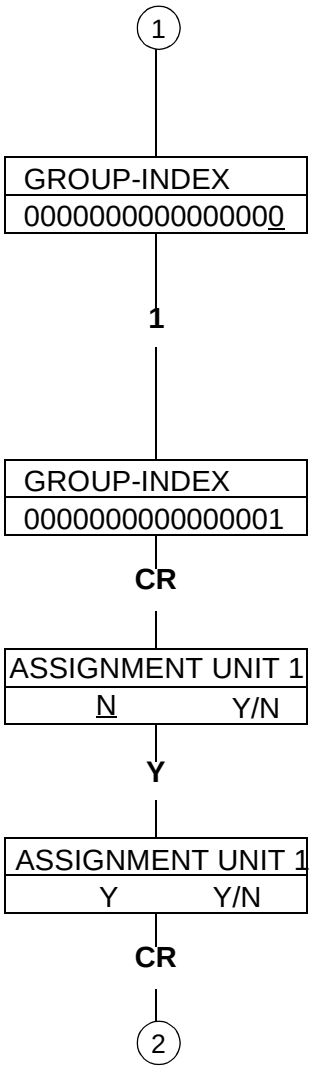


*1 If errors occur during intial start-up of the adapter, press "CR" again.

*2 Or the actual software status

When you connect a PC, the <ENTER>key corresponds to FNC, CR

Enter "Y".
(for TV configured)



If required move cursor with "←" or"→" to the digit to be changed, enter "0" or"1".

Always program

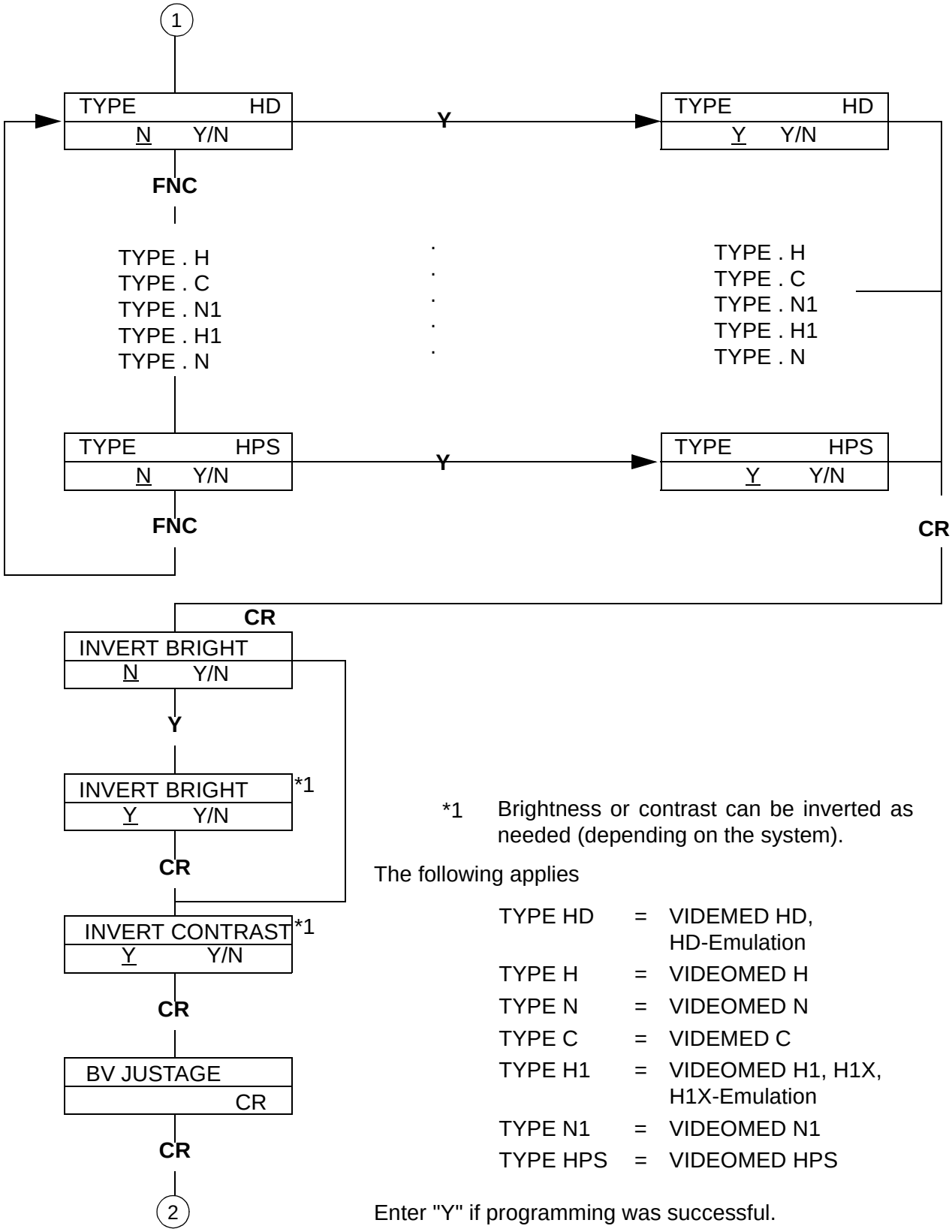
Group index 1
0000.0000.0000.0001

At this point, you are programming the connection for the TV system which is always connected to unit G1 of the generator:

UNIT 1 = g1

Enter "Y" for UNIT 1.

(When you enter "Y" for "UNIT 1", the system stops the queries for additional units).

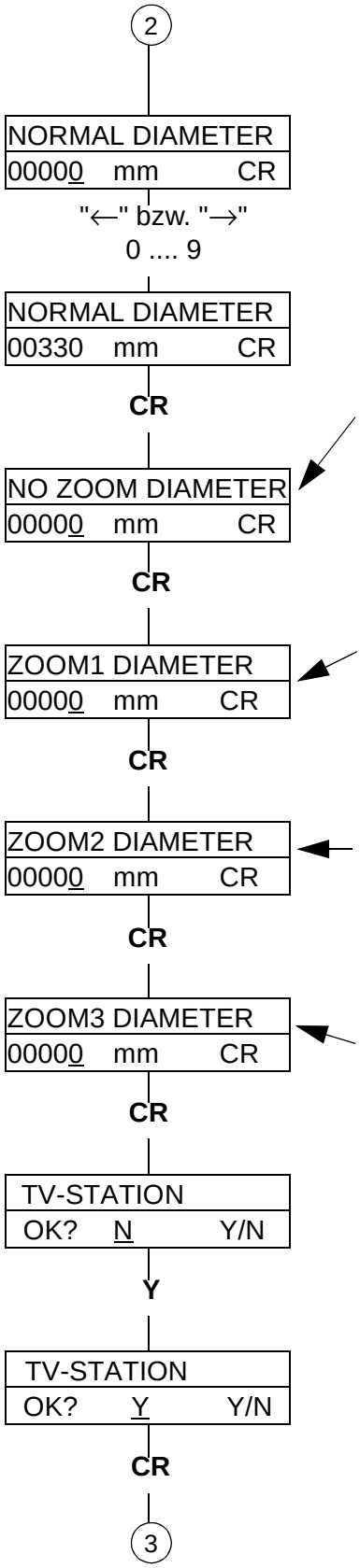


*1 Brightness or contrast can be inverted as needed (depending on the system).

The following applies

TYPE HD	=	VIDEMED HD, HD-Emulation
TYPE H	=	VIDEOMED H
TYPE N	=	VIDEOMED N
TYPE C	=	VIDEMED C
TYPE H1	=	VIDEOMED H1, H1X, H1X-Emulation
TYPE N1	=	VIDEOMED N1
TYPE HPS	=	VIDEOMED HPS

Enter "Y" if programming was successful.



Move th cursor with "←" or "→" to the digit to be changed. Enter the nominal diameter of the image intensifier in mm.

Table:

I.I.-TYPE	40-4 HD	33 HDTri.	27HD Tri.
Nom. diam.	**395 mm**	**330 mm**	**278 mm**

Enter the actual diameter of the image intensifier:.

Table:

I.I.-TYPE	40-4 HD	33 HDTri.	27HD Tri.
Nom. diam.	395 mm	330 mm	278 mm
Actual diam.	**362 mm**	**304 mm**	**262 mm**

Enter the nominal diameter of Zoom 1:

Table:

I.I.-TYPE	40-4 HD	33 HDTri.	27HD Tri.
Nom.diam.	**280 mm**	**230 mm**	**170 mm**

Enter the nominal diameter of Zoom 2:

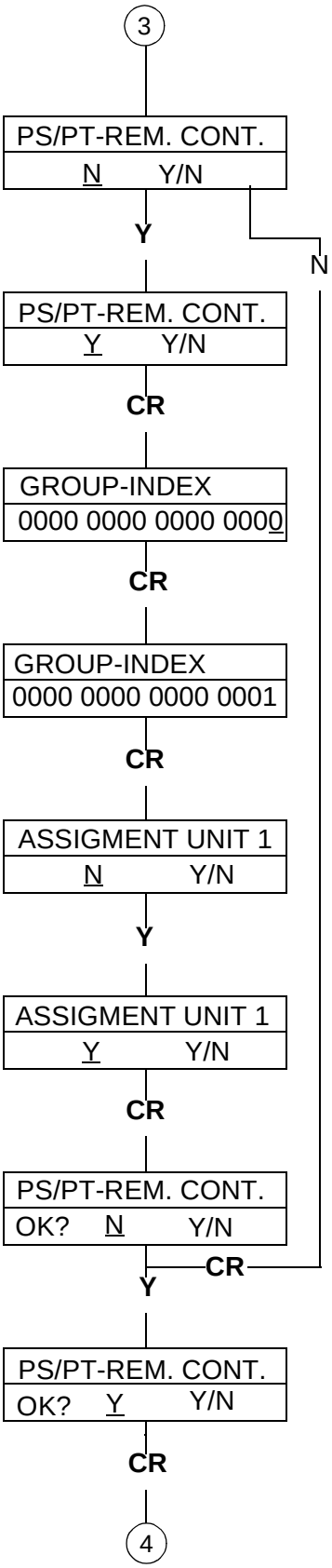
Table:

I.I.-TYPE	40-4 HD	33 HDTri.	27HD Tri.
Nom. diam.	**200 mm**	**170 mm**	**140 mm**

Enter the nominal diameter of Zoom 3:

Table:

I.I.-TYPE	40-4 HD	33 HDTri.	27HD Tri.
Nom. diam.	**140 mm**	**----------**	**----------**



PS = POLYSPOT

PT = POLYTRON

REM. CONT. = Remote control

Enter "N" for FLUOROSPOT H.

Enter "Y" in accordance with the remote control used.

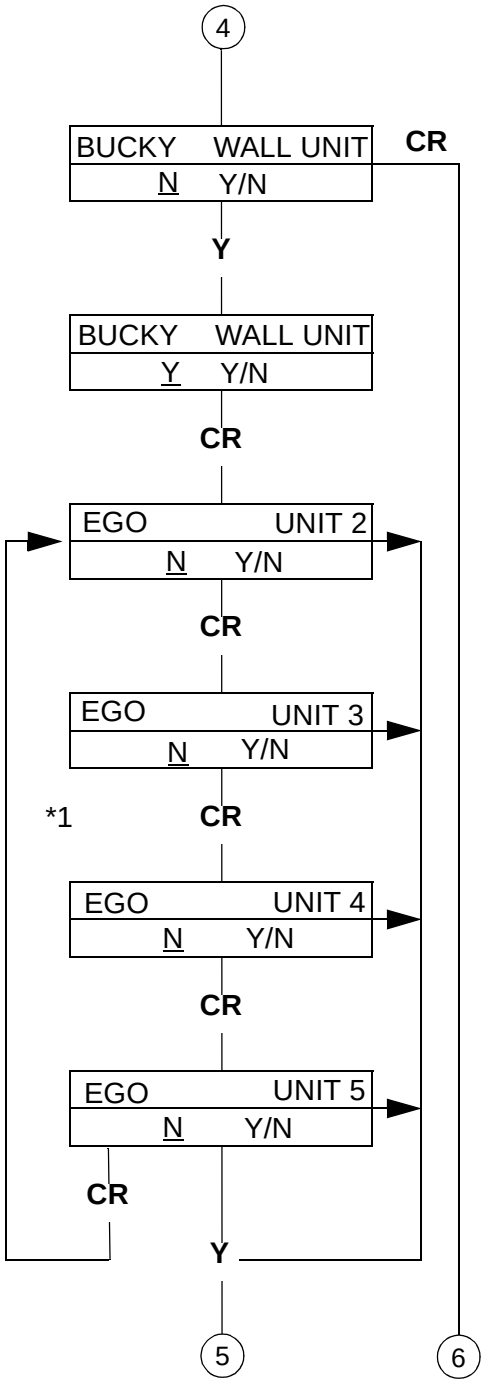
Move the cursor with "←" or "→"to the digit to be changed. Enter "0" or "1".

Always enter

Group index 1

0000.0000.0000.0001

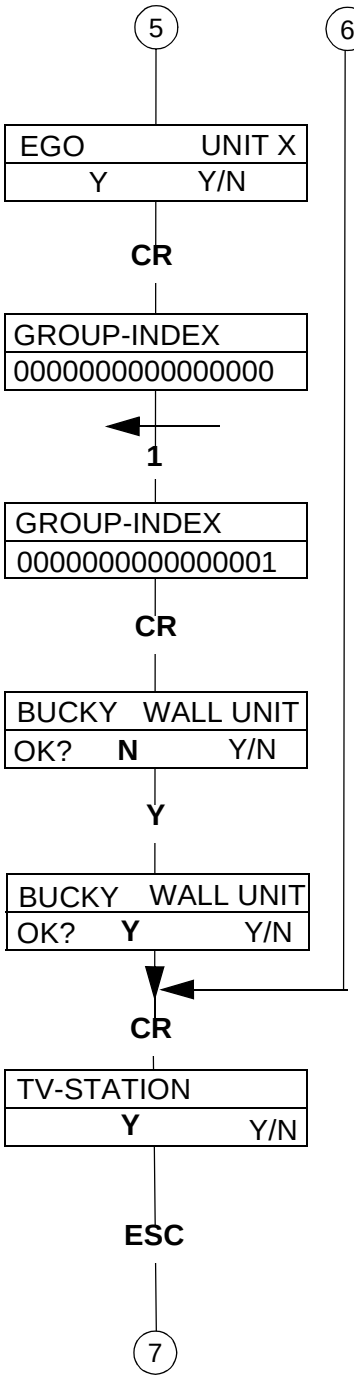
Since the PT/PS is connected to G1 (analogous to the spot film device) enter "Y" for UNIT 1 if the system is equipped with a remote control.



Enter "Y" for the Bucky wall stand (connected to kk1B of the N93).

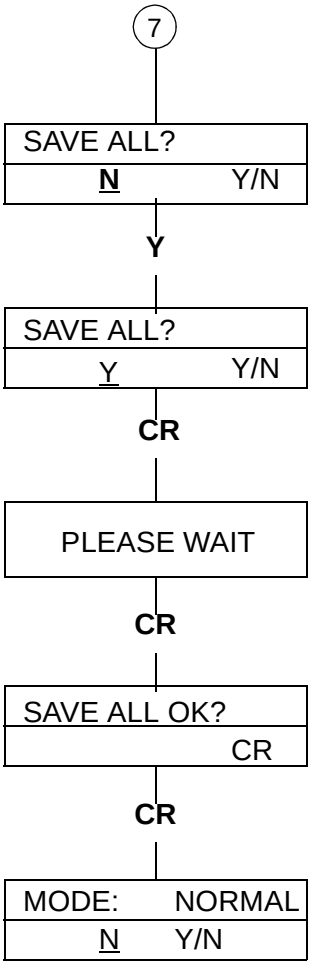
Program "Y" for the unit (UNIT) to which the Bucky wall stand was allocated at the generator.

*1 UNIT 6 ... 8 (cannot be assigned, enter "N").



Always enter...01 as the group index.

Enter "Y" when programming was successful.



Save the programmed data with "Y".

System OFF

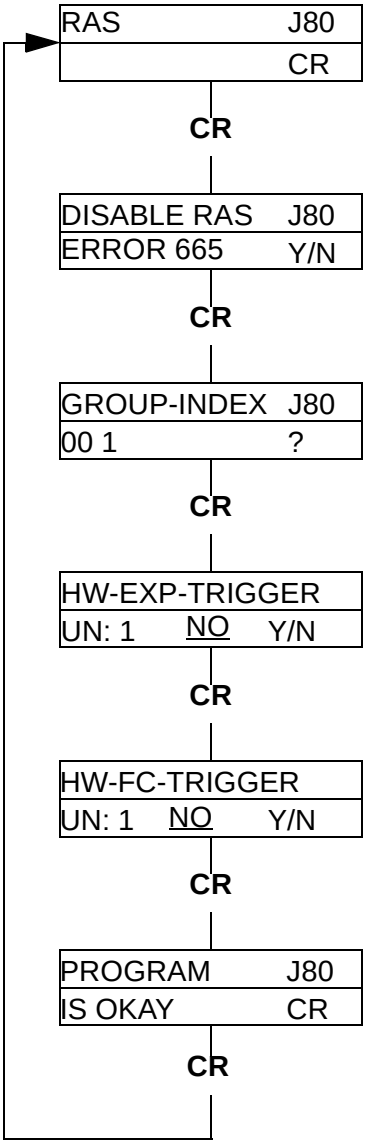
Disconnect service PC or PT.

POLYDOROS 50S/80S

Programming module J80

- Connect the service PC, start pocket terminal emulation and begin programming as described below.

Refer to the instructions " System Configuration POLYDOROS 50S/80S beginning with VG1 R67-010.034.07...."



When you connect a PC, the <ENTER> key corresponds to CR

Ignore the error message 665 (RAS error) up to the next generator OFF/ON?

Always program 001.

HW-EXP-TRIGGER (exposure):
YES for SEP only
In all other cases

enter NO for	SEP uses G3 (frontal PUCK)
G1...G5	G4 (lateral PUCK)

HW-FC-TRIGGER (fluoro):
Always enter NO for G1...G5.

NOTICE

When you program module J80 for the first time, switch OFF the generator and then ON again to transfer and store the data. Document the system configuration in instructions R67-010.034.07... .

POLYDOROS SX 50/80

Refer to the start-up instructions "System configurations" to program system configurations beginning with software version VD00A RX63-050.034... . Use the following menus:

- Configuration/Connected Components
- Configuration/RAS
- Configuration/Unit Selection

After completion, print out the new protocol for the system configuration. To this end, select Print in the Data menu.

File the print-out in Register 9 of the System Manual.

RAS expansion, D42 decision tree

Program according to instructions

- PANTOSKOP 5 - R14-015.032.01....
- PANTOSKOP 540 - RD1-220.032.01....
- SIRESKOP 5 - RXD1-310.032.02....
- SIRESKOP 5-45 - RXD1-225.032.04....

In addition, program the following:

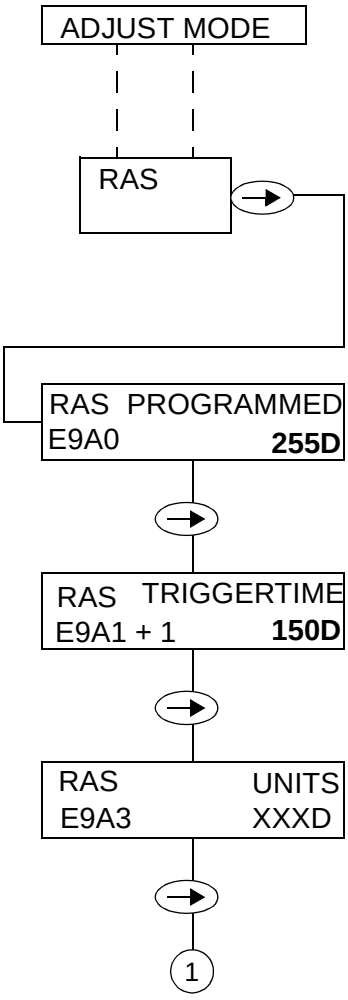
Connect pocket terminal / PC with pocket terminal emulation to D42 in assembly M1 of the system:

- Program the following RAS-specific data.

Notice:

Acknowledge memory contents with CR or <ENTER> for the service PC. Use → to move to the next address.

Overview of the decision tree D42



Note:

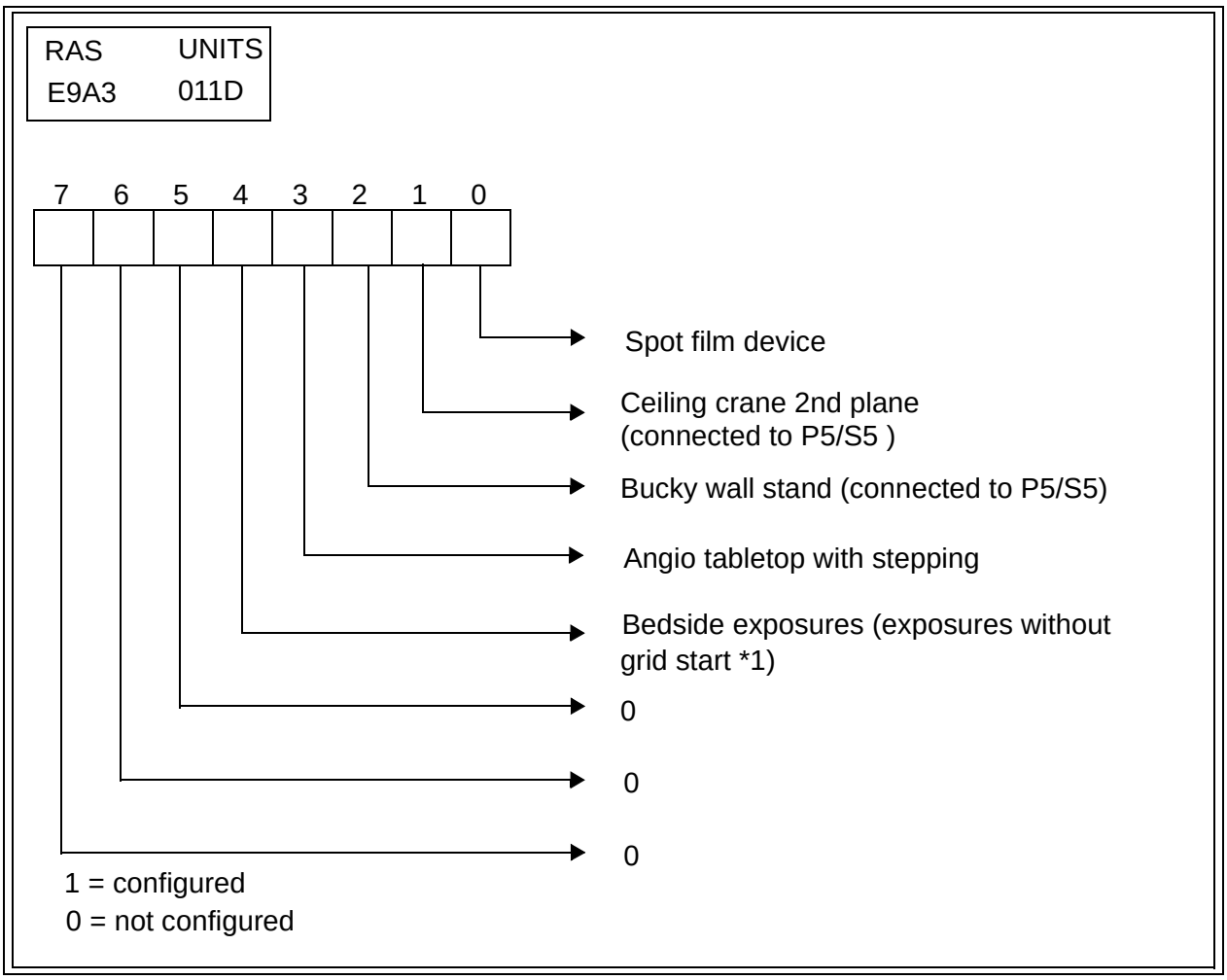
always enter 255

always enter 150

refer to page 5-3

The addresses may vary depending on the software status.

RAS components at the system



- Enter 1 for configured systems
  For example: P5 with spot film device, ceiling crane, Angio table with stepping.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	1

Convert the binary value into a decimal value and enter

00001011 bin = 011D *2

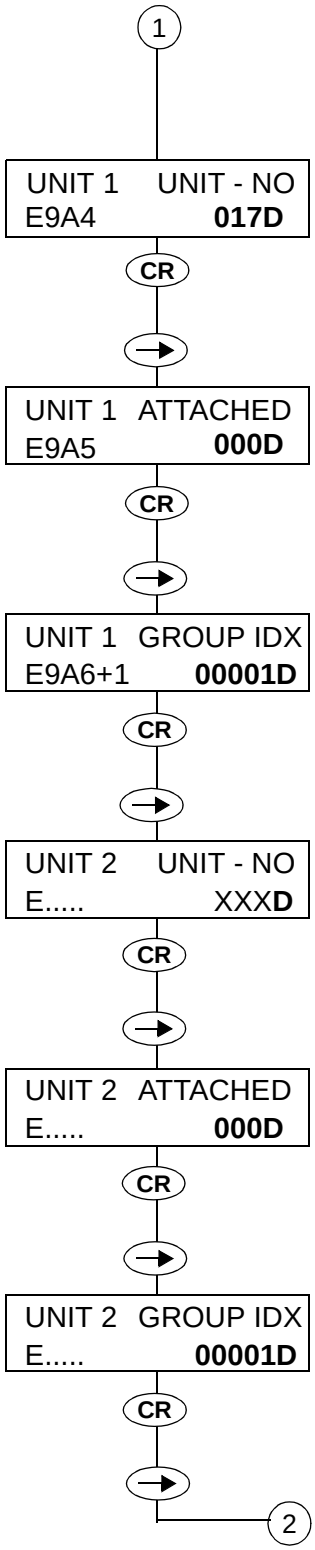
under

RAS	UNITS
E9A3	011D

***1 Bedside exposures:**
Enter 1 if bedside exposures will be released at the X-ray tube (e.g. 3D). The X-ray tube will be allocated to the system and the generator in program step "UNIT 5" as well as at the generator.

***2** Refer to the conversion table in chapter 8.

Programming the spot film device and the ceiling crane



Notes:

Connect the spot film device to G1 at the generator. For this reason, program 017D.

Always enter 000D.

Always enter 00001D.

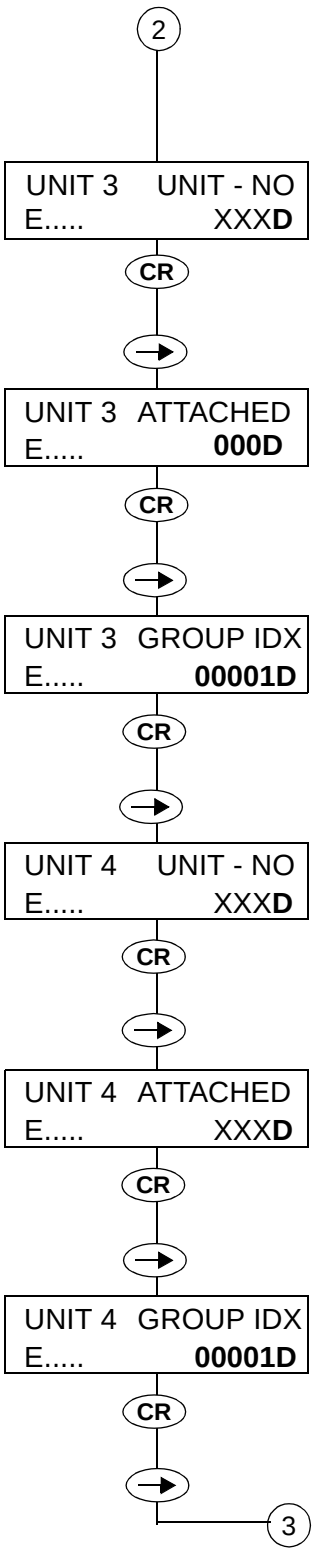
Connecting the ceiling crane

No ceiling crane	program 000D
Ceiling crane as G2 in generator	program 018D
Ceiling crane as G3 in generator	program 019D
Ceiling crane as G4 in generator	program 020D
Ceiling crane as G5 in generator	program 021D

Always enter 000D.

Always enter 00001D.

Programming the Bucky wall stand and ANGIO



Notes:

Connecting the Bucky wall stand (RWG)

no RWG	program 000D
RWG as G2 in generator	program 018D
RWG as G3 in generator	program 019D
RWG as G4 in generator	program 020D
RWG as G5 in generator	program 021D

Always enter 000D.

Always enter 00001D.

Connecting SEP3 for systems with Angio tabletop:

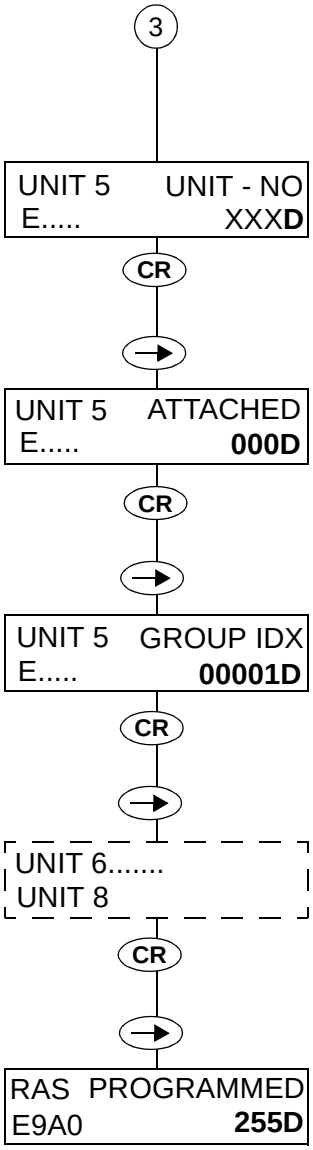
no SEP	program 000D
SEP3 and Angio tabletop configured	program 147D

Notice:
Connect SEP (as G3) in the generator (PUCK frontal) Do not use G4 in the generator.

no Angio tabletop/SEP3	program 000D
Angio tabletop/SEP3 config.	program 019D

Always enter 00001D.

Programming bedside exposures



Notes:

Connection for bedside exposures (exposure release without grid start):

no bedside exposure:	program 000D
bedside exposure as G2:	program 018D
bedside exposure as G3:	program 019D
bedside exposure as G4:	program 020D
bedside exposure as G5:	program 021D

Always enter 000D.

Always enter 00001D.

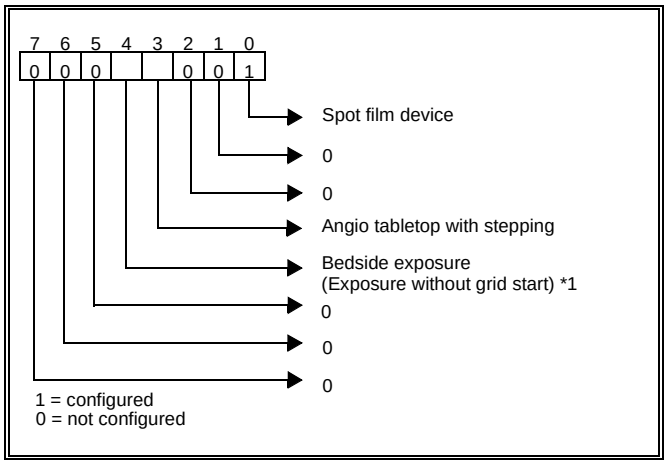
For UNIT 6....8 program **000D**.

Connect pocket terminal /PC with pocket terminal emulation to Z2.K2 in M1 (refer to the setting instructions of the respective SIREGRAPH D to find out how to operate the pocket terminal).

In addition to the programming steps described in the setting instructions, program the following:

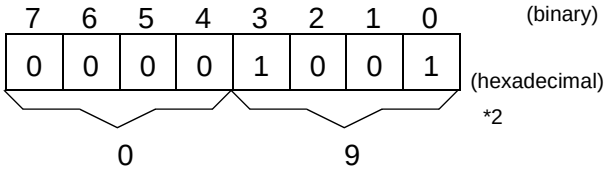
RAS-Index and unit programming

D1, D2M	D3, D340		
Address	Address	Program	
F020 H	0020 H	01 H	System with RAS
F030 H	0030 H	2B H	Always enter 2B
F038 H	0038 H	00 H	Retrigger time RAS G, low byte
F039 H	0039 H	02 H	Retrigger time RAS G, high byte
F03A H	003A H		



- configured devices

Example: Spot film dev. and Angio table conf.



Enter 09 H in address 003A H/F03A H

***1 Bedside exposures:**

Enter **"1"** if you want to take bedside exposures with the X-ray tube and the exposure is to be **released at the generator** .
The above applies whether it is the X-ray tube of the SIREGRAPH or the X-ray tube of another unit (e.g. 3D).
The X-ray tube will be allocated later to the unit in address 004B H/ F04B H and the generator.

NOTICE **This does not apply to "exposures without grid" released at the operating console of the SIREGRAPH.**

***2**Refer to the binary-hexadecimal conversion table in chapter 8.

Programming the spot film device

D1, D2M	D3, D340		
Address	Address	Program	Notes
F03B H	003B H	11 H	Spot film device is connected as G1 in the generator.
F03C H	003C H	00 H	Always enter 00
F03D H	003D H	01 H	Group index 1
F03E H	003E H	00 H	Always enter 00

Programming Angio

D1, D2M	D3, D340		
F047 H	0047 H	93 H	SIREGRAPH is configured with Angio table plus stepping
F048 H	0048 H	13 H 14 H	SEP3 is connected as G3 in the generator (frontal PUCK) SEP3 is connected as G4 in the generator (lateral PUCK)
F049 H	0049 H	01 H	Group index1
F04A H	004A H	00 H	Always enter 00

Programming bedside exposures

Program addresses 004B H (F04B H) to 004E H (F04E H) only if you programmed "bedside exposures" for address 003A H (F03A H).

D1, D2M	D3, D340		
F04B H	004B H	12 H 13 H 14 H 15 H	Tube for bedside exposures connected as G2 Tube for bedside exposures connected as G3 Tube for bedside exposures connected as G4 Tube for bedside exposures connected as G5
F04C H	004C H	00 H	Always enter 00
F04D H	004D H	01 H	Group index 1
F04E H	004E H	00 H	Always enter 00

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MULTIX G040G

Depending on the system, start up the RAS according to the start-up instructions listed below:

MULTIX U/UH-PBL	R24-036.034.03...
MULTIX UP/UPH-PBL	R24-036.034.04...
MULTIX C/CH-PBL	R24-036.034.07...
MULTIX CP/CPH-PBL	R24-036.034.08...

Additionally, refer to R24-036.034.11....for all MULTIX C versions with Vertix 2E, CS4.

Additionally, refer to R24-036.034.09....for all MULTIX U versions with Vertix 2E, 2FA CS4

SEP

Use instructions R99-051.033.01 to start-up the RAS in connection with SEP 3/90.

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Information regarding troubleshooting

Checking the functions of the RAS ring:

The functions of the RAS ring are indicated by the following green LED's:

Board		
	RAS 2	
	RAS 3	
	RAS 4	V3 loop1
		V4 loop 2
	RAS 10	V19
	RAS 10 S	V13
	RAS G	V4
	RAS M	V10
	RAS PC	V10

These LED's have to be illuminated.

If one or more LED's do not light up or flash only

- Check the following sources for error:

- respective board may be defective
- fiber optic cable is defective
- fiber optic cable is not connected correctly (e.g. transmitter is connected to another transmitter).

NOTICE **The RAS ring has to function even if the individual components have not yet been configured.**

Testing the functions of the system:

NOTICE **As a prerequisites, the RAS components have been programmed as specified.**

- Switch off the system
- Switch the system back on again
- The default status for the generator is displayed

The following tools are available for troubleshooting errors during switch-on or system operation which may be caused by one of the RAS components:

- Circuit diagram RAS network X2042
- Service software RAS , instructions R99-051.119.01 ....
- Description of functions, RAS/RX99-051.041.01...chapter 5.

NOTICE

If you have questions regarding troubleshooting RAS components, please contact
OPSBRD: RX3HOTLINE or call 84-7773 in Erlangen.

Conversion table binary/hexadecimal values

Binary		Decimal	Hexadecimal
0000 0000	→	00	00
0000 0001	→	01	01
0000 0010	→	02	02
0000 0011	→	03	03
0000 0100	→	04	04
0000 0101	→	05	05
0000 0110	→	06	06
0000 0111	→	07	07
0000 1000	→	08	08
0000 1001	→	09	09
0000 1010	→	10	0A
0000 1011	→	11	0B
0000 1100	→	12	0C
0000 1101	→	13	0D
0000 1110	→	14	0E
0000 1111	→	15	0F
0001 0000	→	16	10

TD RX 3 / Maierhofer
TD RX 1 / Gans-Grehl
SMS / Fear